What is claimed is:

1. An optical measuring apparatus for irradiating near infrared light to a desired portion of an object to be measured, receiving arriving light from the desired portion and acquiring information about a predetermined substance present in the desired portion on the basis of analysis of data related to the received arriving light, said optical measuring apparatus comprises:

a cover member removably attachable to the object to be measured; and

a measuring unit provide on said cover member and including:

at least one light irradiation section for irradiating the near infrared light to the desired portion of the object; and

at least one light reception section for receiving the arriving light from the desired portion of the object,

wherein, in a state where said cover member is attached to the object to be measured, said light irradiation section and said light reception section are positioned out of contact with the desired portion of the object.

2. An optical measuring apparatus as claimed in claim 1 wherein the object to be measured is a human body, and said cover member is a helmet for covering a head of the human body, and wherein said light irradiation section and said light reception section have their respective distal ends positioned on an inner side of the helmet.

3. An optical measuring apparatus as claimed in claim 1 which further comprises a scanning mechanism, and a condenser lens supported at the distal end of said light irradiation section via said scanning mechanism, and

wherein, during optical measurement by said optical scanning apparatus, said condenser lens is variable, by said scanning mechanism, in an angular position thereof relative to a surface of the desired portion of the object so as to change an irradiation direction of the near infrared light.

4. An optical measuring apparatus as claimed in claim 1 which further comprises a scanning mechanism, and wherein a whole of said light irradiation section is supported by said scanning mechanism, and

wherein, during optical measurement by said optical scanning apparatus, said light irradiation section is variable, by said scanning mechanism, in an angular position thereof relative to a surface of the desired portion of the object so as to change an irradiation direction of the near infrared light.

5. An optical measuring apparatus as claimed in claim 1 which further comprises an adjustment section that moves said light irradiation section in an axial direction thereof with respect to a surface of the desired portion of the object to thereby adjust a distance between said light irradiation section and the surface of the desired portion of the object to be measured, and

wherein said light irradiation section is supported by said

adjustment mechanism.

6. An optical measuring apparatus as claimed in claim 1 wherein the arriving light is diffuse/scattering reflected light from the desired portion of the object to be measured.

7. An optical measuring apparatus as claimed in claim 3 wherein said scanning mechanism includes a piezoelectric element, and variation in the angular position of said condenser lens is effected by control of a voltage to be applied to said piezoelectric element.

8. An optical measuring apparatus as claimed in claim 1 wherein the object to be measured is a human body, and the predetermined substance is blood, and wherein said optical measuring apparatus optically measures an amount of blood in the desired portion of the object.

9. An optical measuring apparatus for irradiating near infrared light to a desired portion of a living body to be measured, receiving arriving light from the desired portion of the living body and acquiring information about a predetermined biological substance present in the desired portion on the basis of analysis of data related to the received arriving light, said optical measuring apparatus comprises:

a light irradiation mechanism for irradiating the near infrared light to the desired portion of the living body to be measured;

a light detection mechanism for detecting the arriving light from the desired portion of the living body;

a pulse wave detection section for detecting a pulse wave in another portion of the living body separate from the desired portion and thereby generating a signal indicative of the detected pulse wave;

an arithmetic operation section for subtracting pulse wave data, obtained on the basis of the signal generated by said pulse wave detection section, from measurement data obtained on the basis of the arriving light detected by said light detection mechanism; and

a display section for displaying a result of an arithmetic operation performed by said arithmetic operation section.

10. An optical measuring apparatus as claimed in claim 9 wherein said light irradiation mechanism includes at least one light source for emitting light of a wavelength in a near infrared range, and at least one optical fiber for transmitting therethrough the light emitted by said light source.

11. An optical measuring apparatus as claimed in claim 9 wherein said light irradiation mechanism includes a light source for emitting light of a wavelength in a near infrared range, a spectroscope for dispersing the light emitted by said light source, and an optical fiber for outputting the light dispersed by said spectroscope.

12. An optical measuring apparatus as claimed in claim 9 wherein said light detection mechanism includes photo detector means sensitive to a plurality of different near infrared wavelength regions.

13. An optical measuring apparatus as claimed in claim 9 wherein the other portion of the living body is located substantially the same distance from a heart of the living body as the desired portion.

14. An optical measuring apparatus as claimed in claim 9 wherein the other portion of the living body is an earlobe.

15. An optical measuring apparatus as claimed in claim 9 wherein the information about the predetermined biological substance pertains to at least one of a concentration of oxygenated hemoglobin, a concentration of deoxygenated hemoglobin, a concentration of all the hemoglobin and an amount of blood in the desired portion.

16. An optical measuring apparatus as claimed in claim 9 wherein the information about the predetermined biological substance pertains to a concentration of glucose in the desired portion.

17. An optical measuring apparatus as claimed in claim 9 wherein the desired portion of the living body is a head of a human body.

18. An optical measuring apparatus as claimed in claim 10 wherein said light irradiation mechanism includes:

a condenser lens provided at a distal end of said optical

fiber;

a feed screw mechanism for controlling a distance between said condenser lens and a surface of the desired portion of the living body to be measured; and

a piezoelectric element expandable or contractible in response to a voltage applied thereto so as to control an angular position of said condenser lens relative to the surface of the desired portion.

19. An optical measuring apparatus as claimed in claim 9 wherein the arriving light from the desired portion of the living body is diffuse/scattering reflected light produced by the irradiated near infrared light entering the desired portion of the living portion, then repeating reflection, refractive transmission and scattering in the desired portion and then getting out of the desired portion toward said light detection section.

20. An optical measuring method for use with an optical measuring apparatus, said optical measuring method comprising:

a step of moving, by means of light-irradiation-mechanism control means, a light irradiation mechanism so that a light outputting end of said light irradiation mechanism gets closer to a desired portion of an object to be measured;

a step of determining, on the basis of a distance value measured by distance measuring means, whether the light outputting end of said light irradiation mechanism has reached a predetermined position near a surface of the desired portion;

a step of irradiating near infrared light, emitted by a light source, to the desired portion of the object via the light outputting end of said light irradiation mechanism while, by means of a scanning mechanism, causing the light outputting end to make scanning movement relative to the surface of the desired portion;

a step of removing a pulse wave detection signal representative of a pulse wave detected by pulse wave detection means from a light detection signal representative of scattering reflected light detected by light detection means; and

a step of calculating, on the basis of the light detection signal having the pulse wave detection signal removed therefrom by said step of removing, a concentration of a biological substance present in the desired portion of the object to be measured.

21. A program for causing a controlling computer of an optical measuring apparatus to perform an optical measuring process, said program comprising:

a step of moving, by means of light-irradiation-mechanism control means, a light irradiation mechanism so that a light outputting end of said light irradiation mechanism gets closer to a desired portion of an object to be measured;

a step of determining, on the basis of a distance value measured by distance measuring means, whether the light outputting end of said light irradiation mechanism has reached a predetermined position near a surface of the desired portion;

a step of irradiating near infrared light, emitted by a light source, to the desired portion of the object via the light outputting

end of said light irradiation mechanism while, by means of a scanning mechanism, causing the light outputting end to make scanning movement relative to the surface of the desired portion;

a step of removing a pulse wave detection signal representative of a pulse wave detected by pulse wave detection means from a light detection signal representative of scattering reflected light detected by light detection means; and

a step of calculating, on the basis of the light detection signal having the pulse wave detection signal removed therefrom by said step of removing, a concentration of a biological substance present in the desired portion of the object to be measured.